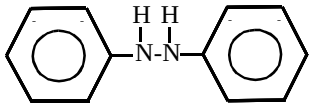
1,2-DIPHENYLHYDRAZINE

1,2-Diphenylhydrazine is a federal hazardous air pollutant and was identified as a toxic air contaminant in April 1993 under AB 2728.

CAS Registry Number: 122-66-7

Molecular Formula: $C_{12}H_{12}N_2$



1,2-Diphenylhydrazine is found as tablets from alcohol and ether. It is slightly soluble in benzene and insoluble in acetic acid. 1,2-Diphenylhydrazine decomposes at its melting point into azobenzene and aniline (HSDB, 1991).

Physical Properties of 1,2-Diphenylhydrazine

Synonyms: hydrazobenzene; sym-diphenylhydrazine; benzene, hydrozobi; n,n-bianiline; 1,1-hydrazodibenzene

Molecular Weight:	184.24
Melting Point:	131 °C
Density/Specific Gravity:	1.158 at 16/4 °C (water = 1)
Vapor Pressure:	1 torr at 103 °C
Log Octanol/Water Partition Coefficient:	2.94
Conversion Factor:	1 ppm = 7.54 mg/m^3

(HSDB, 1991; Sax, 1987)

SOURCES AND EMISSIONS

A. Sources

Although it is no longer produced in the United States, 1,2-diphenylhydrazine is used as a chemical intermediate for benzidine and dyes, an antisludging additive for motor oil, a reductant in reclamation of rubber, a component of experimental organometallic polymers, and in the manufacturing of hydrogen peroxide and anti-inflammatory drugs (HSDB, 1991).

B. Emissions

No emissions of 1,2-diphenylhydrazine from stationary sources in California were reported, based on data obtained under the Air Toxics “Hot Spots” Program (AB 2588) (ARB, 1997b).

C. Natural Occurrence

No information about the natural occurrence of 1,2-diphenylhydrazine was found in the readily-available literature.

AMBIENT CONCENTRATIONS

No Air Resources Board data exist for ambient measurements of 1,2-diphenylhydrazine.

INDOOR SOURCES AND CONCENTRATIONS

No information about the indoor sources and concentrations of 1,2-diphenylhydrazine was found in the readily-available literature.

ATMOSPHERIC PERSISTENCE

No information about the atmospheric persistence of 1,2-diphenylhydrazine was found in the readily-available literature.

AB 2588 RISK ASSESSMENT INFORMATION

1,2-Diphenylhydrazine emissions are not reported from stationary sources in California under the AB 2588 program. It is also not listed in the California Air Pollution Control Officers Association Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines as having health values (cancer or non-cancer) for use in risk assessments (CAPCOA, 1993).

HEALTH EFFECTS

The most probable routes of human exposure to 1,2-diphenylhydrazine are inhalation, ingestion, and dermal contact.

Non-Cancer: No information is available on the acute effects of 1,2-diphenylhydrazine in humans or animals. No information is available on the chronic effects in humans. Rodents chronically exposed to 1,2-diphenylhydrazine in their diet were observed to develop degenerative alterations in the liver, depressed weight gain, intestinal hemorrhage, stomach hyperkeratosis, and interstitial inflammation of the lungs (U.S. EPA, 1994a).

The United States Environmental Protection Agency (U.S. EPA) has not established a Reference Concentration (RfC) or an oral Reference Dose (RfD) for 1,2-diphenylhydrazine (U.S. EPA, 1994a).

No information is available on adverse reproductive or developmental effects of

1,2-diphenylhydrazine in humans. In one animal study, no adverse reproductive effects were found in rats and mice exposed via ingestion (U.S. EPA, 1994a).

Cancer: In the stomach, 1,2-diphenylhydrazine can be converted into benzidine, a known human carcinogen (HSDB, 1991). No information is available on the carcinogenic effects of 1,2-diphenylhydrazine in humans. Hepatocellular carcinomas have been observed in rats and mice exposed to 1,2-diphenylhydrazine in their diet. In dermally exposed mice, lung and liver tumors were reported (U.S. EPA, 1994a).

The U.S. EPA has classified 1,2-diphenylhydrazine as Group B2: Probable human carcinogen (U.S. EPA, 1994a). The International Agency for Research on Cancer has not classified 1,2-diphenylhydrazine as to its human carcinogenicity (IARC, 1987a).